AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A method for biomechanical simulation of a set of bone joints in a patient, and particularly the spine, comprising:

recording in a reference position, via a programmed processor, ~~a step in which a computer processes~~ a three-dimensional digital model, at least partly represented by rigid bodies connected by joints~~, is recorded in a reference position~~;

adjusting, via a programmed processor, ~~a step to personalize the~~ geometry of ~~the~~ said model, using data specific to a patient in ~~the~~ said reference position; [0062]

adjusting, via a programmed processor, ~~a step to personalize the~~ said digital model by ~~particularization~~ defining a set of interaction parameters ~~of~~ for each joint connecting ~~the~~ said rigid bodies, said interaction parameters characteristic of interaction between said rigid bodies ~~as a function of characteristics observed on the patient~~, the step ~~particularizing~~ defining the interaction parameters comprising:

acquiring the positions in space of at least a part of the rigid bodies, and making an interpolation to determine the calculated position of other rigid bodies to build up a digital table containing the relative positions of each rigid body;

determining at least one constraint as a limitation on the interaction between said rigid bodies and applying the at least one constraint of a set of constraints on the patient and acquiring information about ~~the~~ a resultant general equilibrium position of the patient; and

determining a mobility or global stiffness resulting from ~~an action~~the applying the at least one constraint on the interaction of each pair of rigid bodies to ~~produce~~ approximate interaction parameters in order to reproduce the measured relative positions; and

making, via a programmed processor, ~~a correction step making~~ the three-dimensional digital model ~~radiograph image data~~ and the positions in space of at least part of the rigid bodies~~external acquisition data correspond~~, the ~~correction step~~ making comprising:

correcting ~~correct~~ the three-dimensional digital model ~~radiograph~~ reconstruction relative to a ~~the~~ 3D curve derived from the positions in space of at least part of the rigid bodies~~external acquisition data~~ in the same position; and

determine the distribution of points in the 3D curve associated with the ~~vertebras~~ rigid bodies, positioned in the Stokes coordinate system and their associated tangent.

2. (previously presented) The method for biomechanical simulation of a set of bone joints according to claim 1, wherein the digital model is defined by geometric position parameters of the rigid bodies and by stiffness parameters of the joints connecting the rigid bodies.

3. (currently amended) The method for biomechanical simulation of a set of bone joints according to claim 1, wherein the step determining and applying consists of recalculating the ~~personalized~~ digital model resulting from a set of constraints comprising at least one static constraint applied on at least two rigid bodies, and imposing a relative position with a mobility or stiffness different from that corresponding to the behavioral law.

4. (previously presented) The method for biomechanical simulation of a set of bone joints according to claim 1, wherein the step recording the digital model of the set of standard joints consists of defining an alternation of rigid bodies and joints, and for each pair of bodies defining a set of digital parameters characterizing the mobility or the global stiffness resulting from the action of all the rigid bodies and the connecting joints that have an effect on the interaction parameters between the two bodies.

5. (currently amended) The method for biomechanical simulation of a set of bone joints according to claim 1, wherein the personalization step consists of acquiring at least one image of the set of joints of a given patient, extracting information necessary for construction of a real model from ~~the~~ said image by recognition of the position of joints visible in ~~the~~ said image, and modifying the standard model as a function of ~~the~~ said real model.

6. (currently amended) The method for biomechanical simulation of a set of bone joints according to claim 1, wherein the step recording a digital model consists of defining a standard set of digital data comprising the following for each joint represented in the form of a rigid body:

a first geometric reference position descriptor corresponding to the geometry of the set of joints for a "standard" patient in a "reference" position, ~~the~~ said descriptor being determined for each rigid body relative to an adjacent body;

a second mechanical descriptor interacting with each adjacent body, ~~the~~ said mechanical descriptor being representative of the behavioral law when at least one external constraint is applied to the set of joints;

the personalization step consisting of modifying ~~the~~ said standard set of data by ~~personalized~~ said data specific to the patient.

7. (cancelled)

8. (currently amended) The method for biomechanical simulation of a set of bone joints according to claim 2, wherein the step representing the result of a constraint consists of recalculating the ~~personalized~~ digital model resulting from a set of constraints comprising at least one static constraint applied on at least two rigid bodies, and imposing a relative position with a mobility or stiffness different from that corresponding to the behavioral law.

9. (previously presented) The method for biomechanical simulation of a set of bone joints according to claim 2, wherein the step recording the digital model of the set of standard joints consists of defining an alternation of rigid bodies and joints, and for each pair of bodies defining a set of digital parameters characterizing the mobility or the global stiffness resulting from the action of all the rigid bodies and the connecting joints that have an effect on the interaction parameters between the two bodies.